PATENT ABSTRACTS OF JAPAN

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(54) PREPAID CARD AUTHENTICATION SYSTEM

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an authentication system which enables a consumer to easily confirm whether a prepaid card is genuine through a network.

SOLUTION: A user who intends to buy a prepaid card circulating on the market views an authentication ID printed on the prepaid card, accesses an authentication site by a portable telephone with a browser function that the user owns, and inputs and sends the viewed authentication ID through a browser screen. The authentication ID is sent from the browser screen to the authentication site and a picture for confirming whether the prepaid card is genuine is received.
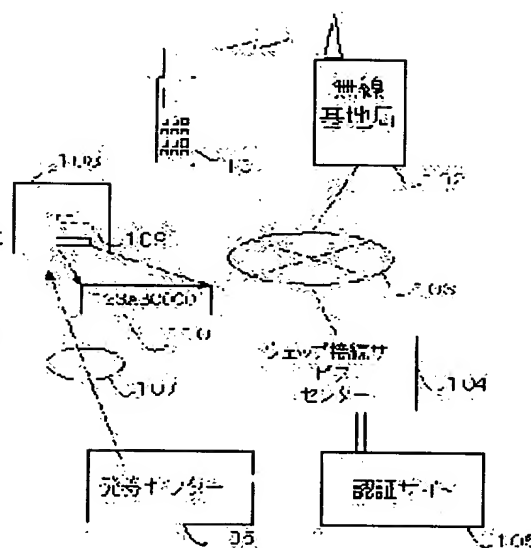
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[Claim(s)]

[Claim 1] A prepaid card is set to a system issued and managed, and it is the 1st card ID
(henceforth). An issue means, the 2nd card ID (henceforth referred to as secondary ID)
issue means which are called primary [ID], An authentication ID generation means to
perform hashing processing by using said primary ones ID and secondary ID as a key,
and to generate one ID for authentication, An issue-of-banknotes means to write said
primary one ID and said authentication ID in a prepaid card, and to issue banknotes, an
input of said authentication ID written in an issued prepaid card -- winning popularity
-- this PURI ** -- id -- an authentication means to attest truth of a card, and a prepaid
card authentication system characterized by including the above as a component.

[Claim 2] In a system which issues and manages a prepaid card A primary ID issue
means, A secondary ID issue means, an authentication ID generation means to perform
hashing processing by using said secondary ID as a key, and to generate ID for
authentication, An issue-of-banknotes means to write said primary one ID and said
authentication ID in a prepaid card, and to issue banknotes, an input of said
authentication ID written in an issued prepaid card -- winning popularity -- this PURI
** -- id -- an authentication means to attest truth of a card, and a prepaid card
authentication system characterized by including the above as a component.

[Claim 3] Writing to a prepaid card primary [said / ID] is the 1st term of a claim which
is the writing by electrical and electric equipment or MAG which cannot be checked by
looking, and is characterized by writing to a prepaid card of said authentication ID
being printing which serves as ID display which can be checked by looking, or a prepaid
card authentication system given in the 2nd term.

[Claim 4] Said authentication means is the 1st term of a claim characterized by
notifying an authentication result to said browser terminal which is an inputting
agency in response to an input of said authentication ID from a browser terminal which
is the site which carried out network connection and was connected to a network thru/or
a prepaid card authentication system given in the 3rd term.

[Claim 5] Said authentication means is the 1st term of a claim characterized by having

an authentication processing monitor means further and supervising an extensive input from the same duplication authentication [over the same authentication ID], and input origin thru/or a prepaid card authentication system given in the 4th term.

[Claim 6] Said browser terminal is the 1st term of a claim characterized by being at least one chosen from a cellular phone with browser ability, a fixed-line telephone with browser ability, television with an Internet function, PDA (Personal Digital Assistance), and a personal computer thru/or a prepaid card authentication system given in the 5th term.

[Detailed Description of the Invention]

[0001]

[Industrial Application] In order to prevent the authentication system of a prepaid card, especially circulation of a counterfeit card, it is related with the system using Card ID. .

[0002]

[Description of the Prior Art] In order to clarify truth of a prepaid card conventionally, special printing of a watermark pattern, a hologram, etc. had been performed to the card. In order to require special ink and advanced printing technology, it was what a running cost requires not to mention the initial cost.

[0003] Moreover, if it is not recognized by the user of the card even if it spaces and is a pattern and a hologram, it is hard to judge the truth suddenly, and it cannot achieve the purpose which hung great cost of preventing circulation of a counterfeit card. The cognitive difficulty of the forged card was carried out from the user, and it was that of a potato.

[0004] If it was going to judge the truth of a prepaid card ultimately, the present condition was that a means by which the user of a prepaid card confirms the truth of the prepaid card which self purchased always anywhere that there is no other way but experts, such as an agency issuing banknotes and a store currently sold directly, or exclusive to use for distinction does not exist. Moreover, even if a counterfeit card circulates, if it is not after actually being used, after being unable to know existence of forgery, but revealing forgery and trouble arising to a user, the cure against a deer cannot be formed.

[0005]

[Problem(s) to be Solved by the Invention] In order for the user of a prepaid card to make it possible to confirm the truth of the prepaid card which self purchased always anywhere, it is the technical problem of this invention to enable it to confirm the truth of the prepaid card which self purchased simply from fixed-line telephones with browser ability, such as L mode from which service began the cellular phone with browser ability

which spread explosively recently, and recently, or television with an Internet function, and the personal computer from the former. Furthermore, it also becomes a technical problem to supply the system by which a user can perceive unjust existences, such as forgery of the card, and can prevent damage in advance before purchase or use.

[0006]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, this invention persons took the following means wholeheartedly as a result of research. In a system which issues and manages a prepaid card Namely, an issue means primary [ID], An issue means of secondary ID, an authentication ID generation means to perform hashing processing by using primary one ID and secondary ID as a key, and to generate one ID for authentication, an input of the authentication ID written in an issue-of-banknotes means to write published primary one ID and the generated authentication ID in a prepaid card, and to issue banknotes, and an issued prepaid card -- winning popularity -- this PURI ** -- id -- a configuration including an authentication means to attest truth of a card, and the above means was adopted.

[0007] In a system which issues and manages a prepaid card Or an issue means primary [ID], An issue means of secondary ID, an authentication ID generation means to perform hashing processing by using published secondary ID as a key, and to generate Authentication ID, An issue-of-banknotes means to write published primary one ID and the generated authentication ID in a prepaid card, and to issue banknotes, an input of the authentication ID written in an issued prepaid card -- winning popularity -- this PURI ** -- id -- an authentication means to attest truth of a card, and a prepaid card authentication system characterized by including the above as a component may be adopted.

[0008] If writing to a prepaid card primary [ID] is writing by electrical and electric equipment or MAG which cannot be checked by looking here, and writing to a prepaid card of Authentication ID is printing so that it may become ID display which can be checked by looking A user of a prepaid card can read the authentication ID currently printed by purchased prepaid card, without using a special means. When using a prepaid card by one side which can input Authentication ID into an authentication means easily, in order not to display directly primary one ID which refers for the effectiveness of a card, there is an effect which makes injustice, such as forgery, difficult.

[0009] A user of a prepaid card connects with a network from an own browser terminal, and an authentication means inputs the authentication ID displayed on a prepaid card which wants to confirm truth, attests [it constitutes as a site which carried out network connection, and] the inputted authentication ID, and is good for a browser terminal which is the input origin to notify an authentication result.

[0010] if an authentication means is further equipped with an authentication processing monitor means and an extensive input from the same duplication authentication [over the same authentication ID] and input origin is supervised -- high input origin of a possibility unjust in the ability sensing existence of a high card of a counterfeit possibility -- it can check -- the Puri ** -- id -- an effect of preventing unjust use of a card is.

[0011] Moreover, since a browser terminal connectable with an authentication means can check truth of a prepaid card which self purchased if needed to a location and time amount with various users as it is at least one chosen from a cellular phone with browser ability, a fixed-line telephone with browser ability, television with an Internet function, PDA (Personal Digital Assistance), and a personal computer, a prepaid card can be used for it in comfort.

[0012]

[Aspect of implementation of invention]

[Example 1] Hereafter, based on drawing, it explains in more detail. Drawing 1 is the configuration of the whole example of this invention. 101 is a prepaid card user's cellular phone with browser ability. 102 is the base transceiver station of a carrier which offers cell phone service, and is connected to the web connection service center 104 through the packet network 103. 105 is an authentication site, and it has connected with the web connection service center 104 by dedicated line, and it is managed as an official site registered into a communication link carrier. 106 circulates a commercial scene 107, after being an issue-of-banknotes pin center,large, writing a primary ID 109 in a prepaid card 108 magnetically and printing still more possible [a check by looking of authentication ID 110].

[0013] A user who makes purchase ****** the prepaid card 108 which is circulating in a commercial scene checks by looking the authentication ID printed by this prepaid card, with the cellular phone 101 with browser ability which self possesses, the authentication site 105 is accessed, and inputs the authentication ID checked by looking from a browser screen, and transmits. Drawing 2 is a browser screen displayed on the cellular phone 101 with browser ability which has accessed at that time. Authentication ID is transmitted to an authentication site from this browser screen, and truth of a prepaid card can be checked so that it may explain in full detail later.

[0014] Although [the cellular phone 101 with browser ability] a cellular phone corresponding to an I mode of NTT DoCoMo is adopted, the same Webb connection service which will also start a cellular phone corresponding to J-sky of J-PHONE or a telephone corresponding to EZ-web of AU in Europe etc. from now on is sufficient as it here. Moreover, the authentication site 105 may be managed as an official site, and

connection with the web connection service center 104 may be the usual website which a configuration of this invention is not restricted to this and connected through the Internet through a dedicated line here. In the case of a website generally exhibited, a browser terminal used may not be restricted to a cellular phone, and a fixed-line telephone with browser ability, television with an Internet function, PDA (Personal DigitalAssistance), a personal computer, etc. are sufficient as it.

[0015] Drawing 3 is the block diagram having shown a configuration of the authentication site 105. That is, it is a configuration of CPU (arithmetic and program control)301, the storage section 302, the authentication ID data base 303, the attested ID data base 304, the inputting agency data base 305, and the URL storage section 306. CPU, the storage section, etc. which constitute this authentication site are connected with a data bus 307.

[0016] CPU301 performs processing based on the CGI script 308 memorized by the storage section 302, the authentication program 309, a supervisor 310, and a communication control program 311. The storage section 302 consists of storage, such as ROM (Read Only Memory).

[0017] If the authentication ID printed in drawing 2 by prepaid card which wants to check truth in the authentication ID input column of 201 thru/or 204 is inputted and the "transmitting" carbon button 205 is clicked CPU301 is made to perform authentication processing which refers to the authentication ID data base 303 by the authentication program 309 which chooses from the URL storage section 306 URL (Uniform Resource Locatore) attached to a tag described by this "transmitting" carbon button. Furthermore, the CGI script 308 makes CPU301 perform processing which generates a hypertext for generating an authentication result screen shown in drawing 4 in response to the result. Moreover, CPU301 is made to perform check processing which chooses from the URL storage section 306 URL (Uniform Resource Locatore) attached to a tag with which a "check" carbon button 401 was described.

[0018] The terminal ID of the cellular phone 101 which processing concerning authentication was supervised by supervisor 310 here, and the attested authentication ID was saved in attested ID data base, and has been accessed for authentication is saved in the inputting agency data base 305. Detection of authentication failure to which authentication exceeding a count predetermined within time amount beforehand set up about the same authentication ID here is carried out and which it is sufficient for and exceeds the predetermined number from the same input origin transmits unjust sensing mail to a predetermined mail address.

[0019] Although an electronic mail was adopted as a means to notify injustice detected here, an unjust notice by unjust monitor means of this invention may be voice warning

from an unjust discovery display on a monitor which is not restricted to this and installed in an authentication pin center,large, a loudspeaker, etc.

[0020] A communication control program 311 makes CPU301 perform processing which various screens generated by CPU301 and an authentication result are made to transmit to a user's cellular phone 101. Moreover, the authentication ID inputted from a user's cellular phone is received, or directions information for performing a CGI script which receives URL transmitted according to action to various carbon buttons, and URL which received specifies is outputted to CPU301.

[0021] Drawing 5 is the block diagram having shown a function of the issue-of-banknotes pin center,large 106. That is, it is a functional configuration called the primary ID issue means 501, the primary ID data base 502, the write-in means 503, the secondary ID issue means 504, the secondary ID data base 505, the authentication ID generation means 506, the authentication ID data base 507, the printing means 508, and the card instrument of circulation 509, and Prima Lee ID is magnetically written in a raw card, and a function to circulate a commercial scene after printing Authentication ID further is achieved.

[0022] The primary ID issue means 501 is published for the issue of banknotes of identification code generated with a predetermined function. This identification code is assigned by raw card under issue-of-banknotes preparation, and is stored in the primary ID data base 502. Executive operation of this actuation is carried out by CPU based on a predetermined program memorized by the storage section.

[0023] The secondary ID issue means 504 publishes a code generated with a predetermined function as secondary ID for authentication ID generation. In the discernment ID generation means 506, function processing is carried out as a key of a hashing function with above-mentioned primary one ID, and this secondary ID generates one authentication ID. This authentication ID is assigned by raw card under issue-of-banknotes preparation, and is stored in the authentication ID data base 507. Storage conservation is carried out for collating also about secondary ID at the secondary ID data base 505. Executive operation of this actuation is carried out by CPU based on a predetermined program memorized by the storage section.

[0024] It is effective in order for it to become difficult to draw the effective authentication ID from the displayed authentication ID since large ID space can be made to generate a key value diffusively, if a hashing function and secondary ID which are used for authentication ID generation are chosen appropriately and to prevent malfeasances, such as forgery.

[0025] As a key of a hashing function, although primary one ID and secondary ID were used, hashing processing may be performed by using only secondary ID as a key here.

Since it is not what was drawn from primary one ID even if it adopts which method, it can prevent drawing primary one ID from Authentication ID and being used for malfeasances, such as forgery.

[0026] If primary one ID and Authentication ID which are assigned with each above-mentioned means by raw card prepared for the issue of banknotes are prepared, printing of Authentication ID will be carried out to magnetic writing and the printing means 508 primary [ID] by the write-in means 503, banknotes will be issued by the card instruments of circulation 509, such as an automatic vending machine and a ticket shop, and a commercial scene 107 will be circulated. Although a magnetic write-in method was adopted as writing primary [ID] here, if it is the methods of writing in which cannot be checked by looking, such as an electric store method in which a memory chip etc. was made to build, it is employable as a system of this invention.

[0027] If the issue of banknotes is checked, the authentication ID data base 303 of the authentication site 105 and a synchronization will be taken, and authentication of the authentication ID printed by prepaid card issued in an authentication site will be attained.

[0028]

[Effect of the Invention] According to the system of this invention described above, though it is the method of supplying more certainly than special printing technology, such as a hologram, the service which judges the truth of a card only by inputting the authentication ID of a prepaid card from a network by low cost, and printing by ordinary printing, authentication ID [itself] reliability can be held. Furthermore, it also becomes possible to perceive injustice, such as forgery, in an early phase under supervising the authentication process in an authentication site.

[Brief Description of the Drawings]

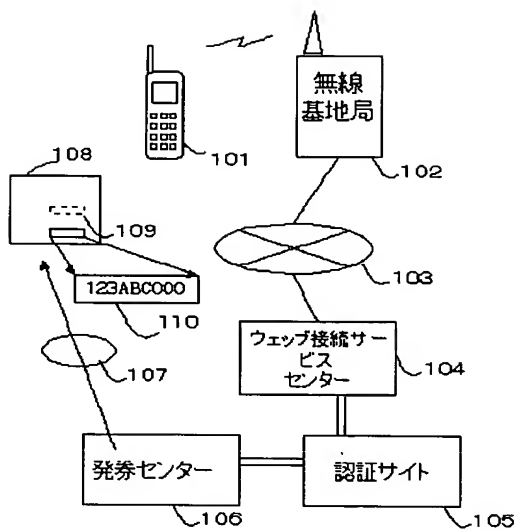[Drawing 1] The configuration of the whole example

[Drawing 2] Browser screen

[Drawing 3] The configuration of an authentication site

[Drawing 4] Authentication result display screen

[Drawing 5] The functional block diagram of an issue-of-banknotes pin center,large

[Drawing 1]

[Drawing 2]

[Drawing 3]

105

```
CPU
301

認証ID
DB
303

認証済ID
DB
304

入力元
DB
305

URL記憶部
306
```

308 — CGIスクリプト
309 — 認証プログラム
310 — 監視プログラム
311 — 通信制御プログラム

302

307
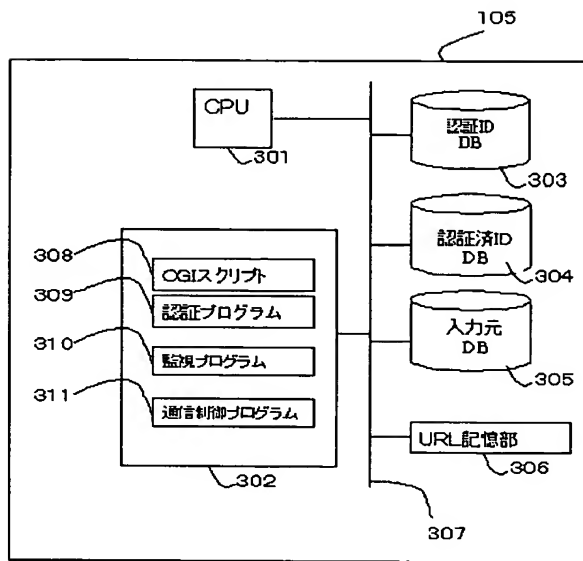
[Drawing 4]

認証結果

認証ID ： 125p004856003675kk
認証結果： 本物です

認証ID ： 125s004857883675kk
認証結果： 本物です

認証ID ： 136z004856003675kk
認証結果： 偽物です。
発券センターまでご連絡ください

認証ID ： 125p00485600344511
認証結果： 本物です

確認

401

[Drawing 5]